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Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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In the Matter of:

Allocation of Spectrum Below  
5 GHz Transferred from Federal  
Government Use

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ET Docket No. 94-32

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF SECRETARY

REPLY COMMENTS OF  
ADVANCED MICRO DEVICES, INC.

Advanced Micro Devices, Inc. ("AMD"), by its attorneys, respectfully submits its reply comments in the above-captioned proceeding. As discussed herein, the record confirms the need to preserve the utility of the entire 2.4 GHz band for innovative Part 15 devices and to refrain from permitting new licensed use of the 2402-2417 MHz frequencies at issue in this proceeding.

AMD's opening comments compellingly demonstrated that Part 15 use of the 2.4 GHz band advances the Commission's stated objectives of "creat[ing] new jobs, foster[ing] economic growth, and improv[ing] access to communications by industry and the American public."<sup>1</sup> AMD detailed the enormous public benefits of Part 15 use of this band and explained that these benefits cannot be met in other currently available spectrum or through commercial services. It also noted that new uses of these frequencies that will

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<sup>1</sup> AMD Comments at 2, quoting Notice at ¶ 1.

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promote important NII-related goals, including mobile computers and wireless LANs, will be introduced shortly.<sup>2</sup>

In addition, AMD emphasized that equity and policy considerations strongly support continued Part 15 use of the entire 2.4 GHz band, because manufacturers have invested heavily in developing products for these frequencies, in reliance on the Commission's decision just four years ago to promote deployment of innovative spread spectrum devices at 2.4 GHz.<sup>3</sup> Finally, AMD explained that the 2042-2417 MHz band is fundamentally ill-suited to primary use by licensed services in light of the background noise level generated by millions of microwave ovens.<sup>4</sup>

Twenty-nine other commenters similarly urged the Commission to preserve continued Part 15 use of the entire 2.4 GHz band.<sup>5</sup> These commenters thoroughly documented the substantial public benefits engendered by spread spectrum devices utilizing these frequencies. For example, Norand Corporation noted the "striking" business advantages of 2.4 GHz wireless LANs and explained that:

The wireless LAN market is expected to explode from approximately \$70 million in 1993 to over \$1.7 billion by the year 2000. The market for equipment used to support wireless LANs is already \$500 million and

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<sup>2</sup> Id. at 3-4.

<sup>3</sup> Id. at 4-5.

<sup>4</sup> Id. at 5-6.

<sup>5</sup> Cite.

expected to grow as fast as the wireless LAN market itself, making it a potentially multi-billion dollar market. With tens of millions of portable PCs already in use, demand for wireless LAN capability is likely to increase as knowledge of this new technology becomes widespread. Annual sales of wireless LAN cards alone is expected to grow to 1.7 million units by 1998.<sup>6</sup>

Comments submitted by 3Com likewise corroborated the tremendous economic benefits produced by Part 15 use of the

#### 2.4 GHz band:

The emerging market for wireless data communications equipment will [achieve the Commission's objectives], and, in particular, create high technology and high income jobs for U.S. citizens. The market for wireless office equipment has doubled in the last year, from \$100 million in 1993 to \$200 million in 1994 and sales are expected to reach \$350 million in 1995. Market analysts also predict that annual sales of this equipment will be between \$750 million and \$1 billion by the year 2000. 3Com and other U.S. developers are poised at the cutting-edge of technology and prepared to serve this expanding market, however, the key to their success will depend on the allocation of sufficient radio-frequency spectrum by the Commission to develop and deploy unlicensed radio-based communications systems.

The relatively few commenters who suggested that the 2402-2417 MHz band should be used for licensed services offered no assurance that their proposed allocations would be consistent with continued Part 15 utilization. Nor did these commenters offer any basis for concluding that their proposed services would better serve the Commission's objectives than unfettered utilization by innovative, valuable spread spectrum applications. As discussed below, each of the alternative proposals is fundamentally inconsistent with

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<sup>6</sup> Norand Corporation at 6-7 (footnotes omitted).

continued Part 15 use of the 2.4 GHz band, unrealistic, and contrary to the public interest.

Leaco Rural Telephone Cooperative asks the Commission to allocate all 50 MHz of transferred spectrum to rural telephone companies for the provision of interactive video, voice and data services.<sup>7</sup> AMD certainly supports the provision of such advanced services to all Americans, including those residing in rural areas. Leaco has made no showing, however, that the requested frequencies are suited for the requested service. Indeed, other telephone companies already have concluded that the 2402-2417 MHz band is "unusable" for similar wireless loop applications because the level of interference from microwave ovens "can neither be estimated nor controlled."<sup>8</sup> In addition, Leaco does not explain why its proposed applications could not be accommodated in the unlicensed PCS spectrum, in a new allocation for private spectrum at 2.3 GHz,<sup>9</sup> through use of advanced spread spectrum devices such as interconnected wireless LANs, or through wired facilities. Finally, Leaco has made no effort to show that its proposed allocation would be consistent with continued Part 15 use of the 2.4 GHz band,

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<sup>7</sup> Leaco at 1.

<sup>8</sup> See SR Telecom, Inc. at 5.

<sup>9</sup> AMD notes that many commenters have supported paired use of the 2300-2310 MHz and 2390-2400 MHz bands for either data-PCS or private spectrum applications. [Cites.]

and in fact, the licensed service would preclude such use. Consequently, there is no basis for concluding that the speculative allocation sought by Leaco would produce greater public benefits than undisturbed Part 15 utilization of the 2402-2417 MHz frequencies.

Two related entities -- the County of Los Angeles and the Los Angeles County Sheriff's Department -- urge the Commission to make the 2402-2417 MHz frequencies available for public safety and mobile airborne video operations. Once again, AMD does not dispute that some allocation of frequencies for this purpose would be beneficial. The 2.4 GHz band is entirely unsuitable, however. The Sheriff's Department suggests that the problem of interference from microwave ovens and "other ISM devices" could be alleviated by placing fixed receive sites in non-residential areas.<sup>10</sup> Nonetheless, it submits no studies demonstrating that interference levels would be tolerable even in rural areas, and certainly does not demonstrate that the proposed use would permit continued operation by Part 15 devices at 2.4 GHz. Nor do these commenters explain why their needs could not be met with less than 50 MHz (for example, with the 25 MHz available at 4.6 GHz), through the existing allocation for airborne video at \_\_\_\_ GHz, or with an expanded allocation for advanced private applications in other frequency bands.

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<sup>10</sup> Los Angeles County Sheriff's Department at 5.

Loral Qualcomm asks the Commission to allocate the 2402-2417 MHz band for non-geostationary Mobile Satellite Service in the space-to-earth direction.<sup>11</sup> Loral asserts that a Draft New Recommendation of the ITU Radiocommunication Sector provides criteria for coordination between non-geostationary MSS downlinks and terrestrial fixed service systems, thereby validating "the ability of non-GSO MSS systems operating in the space-to-Earth direction to share with terrestrial fixed systems."<sup>12</sup> Regardless of whether the Recommendation can be read as Loral suggests, it is fundamentally irrelevant to the issue of compatibility between MSS use of 2.4 GHz and use by low-power, portable Part 15 devices. Coordination with such devices is infeasible, and accordingly, allocation of these frequencies for MSS downlinks would unreasonably preclude continued Part 15 utilization of the band.

Finally, several commenters from the Amateur community request, as a defensive measure, that the Commission accord them primary status at 2402-2417 MHz if these frequencies are made available for auction to commercial services.<sup>13</sup> AMD fully concurs with these commenters that the 2.4 GHz band suffers from an "almost complete lack of utility ... for

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<sup>11</sup> Loral Qualcomm at 4.

<sup>12</sup> Id. at 5.

<sup>13</sup> See, e.g., American Radio Relay League at 22.

additional commercial services ...."<sup>14</sup> AMD also agrees that, in the absence of alternative compatible uses of these frequencies, "the only means of proceeding in light of the obligations on the Commission under the Reconciliation Act are to find substitute spectrum for reallocation for new services, or leave the Amateur Service, Part 15 devices, and Part 18 ISM devices as the only users of the 2.4 GHz segments."<sup>15</sup> Accordingly, the Commission should render the Amateurs' request for primary status moot by preserving the existing uses of the 2.4 GHz band.

For these reasons and those expressed in AMD's opening comments, there is no rational basis for making the 2402-2417 MHz band available for new licensed uses. This band is essential to continued utilization of the entire 2.4 GHz band by innovative and highly beneficial Part 15 devices, and re-allocation of these frequencies by auction for licensed services would preclude such use and seriously injure U.S. manufacturers and consumers. The Commission should therefore continue to support Part 15 use of the entire 2.4 GHz band

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<sup>14</sup> Id. at 14.

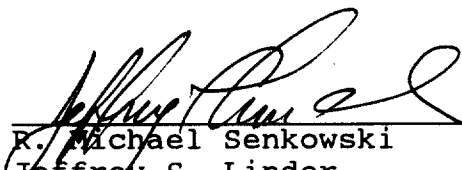
<sup>15</sup> Id. at 18.

and take no action that would compromise the utility of these frequencies for spread spectrum, unlicensed devices.

Respectfully submitted,

ADVANCED MICRO DEVICES, INC.

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